AT&T's Response to Louisville Metro Government's Broadband Infrastructure Upgrade and Expansion Request for Information

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January 31, 2014

Ted Smith
Chief of Economic Growth and Innovation
Department of Economic Growth and Innovation
444 South Fifth St., Ste. 600
Louisville, KY 40202

Dear Mr. Smith,

As the largest city in the Commonwealth of KY, Louisville has much to be proud of.

- Most Livable City" by U.S. Conference of Mayors
- "Top Travel Destination for 2013" by Lonely Planet
- "Best Places to Retire" by U.S. News & World Report.
- Top 10 "Best Cities for Families" by Parenting Magazine.
- "Best Places to Live" by Men's Journal.
- City website named best in America by Center for Digital Government.
- Top 10 ranking for using social media to inform and engage citizens.

AT&T understands that the purpose of Louisville Metro Government's Broadband Infrastructure Upgrade and Expansion Request for Information is to drive innovation, job growth, overall quality of life, and economic growth by ensuring that the following goals are met.

Goal 1: Create a world-leading gigabit-capable network in targeted commercial corridors, as well as in residential areas with demonstrated demand, to foster innovation, drive job creation, and stimulate economic growth.

Goal 2: Provide free or heavily-discounted 100 MB (minimum) internet service over a wired or wireless network to underserved and disadvantaged residential areas across Louisville.

Goal 3: Deliver gigabit internet service at prices comparable to other gigabit fiber communities across the nation.

Mayor Greg Fischer and your City leaders are committed to leading and managing the process needed to making the critical investments required to meet the demands of a 21st century

economy fueled by broadband networks. As a major city on AT&T's broadband roadmap, we share these goals. We're investing in Louisville; and our Fiber Broadband Services and Wi-Fi initiatives, along with our competitive broadband wireless and wireline Internet access, fit well with Louisville's goals.

AT&T wants to work with the City to create modern broadband solutions to meet today's economic challenges and prepare the City and its residents, businesses, and visitors for tomorrow's opportunities. We know you have a choice of communications providers, and we want to earn your business. We look forward to working with you to make this project a success.

Sincerely,

Betty Farmer
Account Manager

Rethink Possible

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Proposal Validity Period—The information and pricing contained in this proposal is valid for a period of ninety (90) days from the date written on the proposal cover page unless rescinded or extended in writing by AT&T. **Terms and Conditions**—This proposal is conditioned upon negotiation and execution by the parties of a written agreement containing mutually acceptable terms and conditions. **Proposal Pricing**—Pricing proposed herein is based upon the specific product/service mix and locations outlined in this proposal, and is subject to the standard terms and conditions of AT&T unless otherwise stated herein. Any changes or variations in AT&T standard terms and conditions and the products, length of term, services, locations, and/or design described herein may result in different pricing. **Providers of Service**—Subsidiaries and affiliates of AT&T Inc. provide products and services under the AT&T brand. Where required, an AT&T Affiliate authorized by the appropriate regulatory authority will be the service provider.
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Background

Louisville Metro Government has expressed a desire to foster innovation, stimulating economic growth, driving job creation, and serving new areas of development in the community through improvements to essential infrastructure and services. Louisville Metro Government recognizes that improved access to high-speed broadband will provide substantial value to their citizens. AT&T has announced its intent to build and operate gigabit fiber networks in multiple cities in the United States that provide terms and conditions that make it feasible and attractive for it to invest.

AT&T is experienced in deploying and operating all fiber gigabit networks. AT&T has deployed Fiber–to-the-Premises (FTTP) to hundreds of thousands of customer locations and operates one of largest Tier 1 Internet backbones globally. Our network includes extensive wireless and wired access capabilities. AT&T also has significant operating scale in providing broadband, TV, and voice services.

AT&T's Kentucky Operations

AT&T has a significant presence in Kentucky and employs more than 3,000 people with a payroll of more than $180M annually. AT&T is committed to continuous improvement of our network in Kentucky, with more than $650M invested in Kentucky wireless and wireline networks from 2010 through 2012. We also offer our advanced Internet Protocol TV service, AT&T U-verse® TV, in Kentucky.

In 2012, AT&T spent more than $73M on goods and services purchased from Kentucky-based suppliers. AT&T operates 34 company-owned retail locations in Kentucky, and company operations generated approximately $200M in state and local taxes in 2011.

Ideas and Comments on LMG's Goals

LMG is committed to making the critical investments and policy modifications required to ensure that it is prepared to meet the demands of a 21st Century economy. LMG must provide the resources necessary for businesses, residents, and government to succeed and thrive in order to build on the economic base it has already established and to be a global leader and pioneer. Availability of and access to a high-speed broadband network has quickly become viewed as critical urban infrastructure, similar to electricity, water, and roadways.

LMG has also asked for suggestions on how to develop an environment that encourages broad deployment of a gigabit fiber network. In addition, LMG has established three

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goals and has requested ideas and recommendations for developing, upgrading, and expanding broadband infrastructure in the city and improving access to high-speed Internet for residents across Louisville.

- Goal 1: Create a world-leading gigabit-capable network in targeted commercial corridors, as well as in residential areas with demonstrated demand, to foster innovation, drive job creation, and stimulate economic growth.
- Goal 2: Provide free or heavily-discounted 100 MB (minimum) internet service over a wired or wireless network to underserved and disadvantaged residential areas across Louisville
- Goal 3: Deliver gigabit internet service at prices comparable to other gigabit fiber communities across the nation.

Below, we provide ideas and comments to LMG's three goals including how to use this platform to achieve the LMG's goals for the community, and some suggestions on how LMG might foster broadband investment.

Goal 1a: Create a world-leading gigabit-capable network in targeted commercial corridors, as well as in residential areas with demonstrated demand.

A world leading gigabit capable network should be all fiber and be able to provide High Speed Internet Access, TV, and VoIP for both residential and business customers. In addition business services provided should include advanced multi-site connectivity services such as switched Ethernet and network VPNs. Fully utilizing this capability within the home requires a next generation home gateway with the latest Wi-Fi technology to enable an enhanced in-home broadband experience by providing access to these high broadband speeds on Wi-Fi connected devices in the home, e.g., for simultaneously viewing content on tablets and other mobile devices.

Reaching residential and business customer locations with a gigabit capable network may require several potential business models and serving architectures. In general, the feasibility of delivering ultra-high speed broadband services will be greatest where the cost to deploy and operate such a network is relatively low and there is sufficient demand for ultra-high speed broadband, i.e., in areas that include a concentration of potential subscribers who place a high value on ultra-high broadband bandwidth. Deployment costs are generally lower in areas that are densely populated and where facilities are aerial, i.e. on poles. Negotiations with landlords of apartments or multi-tenant business buildings may also be required before the overall feasibility can be determined.

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At a high level, there are three customer location types with potential serving architectures and business models appropriate for each:

- **Single family residential** – The desired serving arrangement is Fiber-To-The-Premise (FTTP), where customer demand is expected to compensate for the cost to deploy and operate the network. Deployment would be guided by anticipated customer demand for very high speed broadband and the cost of deploying in each neighborhood, aided by efficient network deployment. In addition to market research, a customer pre-registration process would provide an early indication where the demand is sufficient to cover the estimated investment required.
- **Residential MDUs** – The most appropriate commercial offers to serve MDUs are subject to building wiring, forecasted penetration, and churn, among other factors affecting customer experience. The service coverage of MDUs will be a result of the ability of the Service Provider to agree to terms with the MDU property owners.

  MDUs require several serving architectures in order to effectively serve. In properties not yet built, fiber to each living unit typically offers the most cost/benefit. Fiber can be placed during construction at relatively low cost, with minimal aesthetic impact or disruption to tenants.

  In existing MDU properties, it may be practical under certain conditions to pull fiber to each unit, but it is more likely that use of fiber-to-the-building (FTTB) and use of existing copper inside (the building) wiring will provide the best cost/benefit. If the wiring is category 5 or better, Ethernet from a central point in the building may be practical. Otherwise, VDSL (using 17MHz and vectoring, and soon G.FAST) provides higher customer broadband speeds.
- **Businesses** – Serving some business locations with a fiber gigabit network would likely be part of a FTTP deployment described above for residential areas; businesses are often part of neighborhoods that would meet a deployment threshold. But serving additional business customers would likely require deploying a Fiber-to-the-Building (FTTB) network. Areas where multiple businesses are located, e.g., multi-tenant office buildings, could be served by cost sharing the special construction to bring fiber into the building. In some situations, with landlord permission, the network (fiber and electronics) could be pre-provisioned (in advance of customer order) to business buildings. LMG could facilitate the discussions with landlords about the program and the required Point of Entry for building access, and provide expedited responses to permit requests.

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Goal 1b: Foster innovation, drive job creation, and stimulate economic growth.

The focus of this goal is to use the fiber platform to further the citywide technology ecosystem, driving innovation by fostering experimentation. An objective of the program could be to accelerate technology innovation—empowering citizens in part through the use of platforms, technologies, products, and services to solve their unique community challenges and unleash possibilities for education, public safety, business formation, health care, smart homes, connected cars, power grids, retail, and public transportation, among other areas.

A potential first step in achieving this goal could be to outline a vision for a more connected community, perhaps by commissioning an outreach program to identify and scope opportunities to collaborate on developing new ideas and innovations that are of importance to the community; inviting public participation in an effort to solve community challenges. LMG might include participation by local community and institution leaders who could assist with identifying and scoping opportunities for community engagement and partnership.

The second phase could be to review findings and build a program that delivers a new innovation ecosystem. A smart, interconnected community will aid economic activity and productivity in the following potential areas, among others:

- Creating new business models through increased communication capability
- Enhancing community innovation and incubation hubs—provide tools and assistance with funding and distribution
- Enhancing education applications that facilitate new ways of learning and conducting university research
- Create new efficiencies in the delivery of government services and increased information sharing.
- Enhancing health applications such as telehealth and health-information exchanges
- Smart growth—connected car using distributed Wi-Fi, etc.
- Public safety including Homeland Security—video surveillance, etc.
- Information security
- Citizen access to free Wi-Fi

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Goal 2: Provide free or heavily-discounted 100 MB (minimum) internet service over a wired or wireless network to underserved and disadvantaged residential areas across Louisville

Disadvantaged residential areas are not well positioned to participate in the Digital Economy. The prerequisites to participate in the Digital Economy are: 1) Access (i.e., broadband coverage of disadvantaged residential areas), 2) Affordability (i.e., ability and willingness to pay for wired Internet access and computer/software) and 3) Digital Literacy (i.e., computer and applications skills). A key challenge to identifying and helping those in need, i.e., bridging the Digital Divide, is determining eligibility and on-going program administration.

Some solutions to providing access to disadvantaged areas could include:

FTTP in Underserved Neighborhoods: As mentioned above, the cost of deploying FTTP are lowest in areas with higher customer density and easier fiber placement. Neighborhoods with these characteristics are typically found in cities, in neighborhoods surrounding the downtown area. These neighborhoods are sometimes disadvantaged areas, but a gigabit fiber network may be feasible due to the low cost of deployment.

Low Income MDUs: Recognizing that nearly 30% of households are residents of MDUs, an offer of free low speed broadband to all residents in a MDU in exchange for contractually negotiated reduced 'door fees' and other supplemental payments to property owners, may be feasible. This could result in a significant increase in citizens with Internet access and the property owners' benefit by providing more value in amenities to their residents. LMG could work with property owners to build awareness and explain the value of this offer.

Public WiFi: Enabled in part by the deployment of the Network, public Wi-Fi hotspots would provide greater Internet access to the citizens of the Louisville, including those who do not otherwise have access to a broadband connection. LMG could view this investment by the Service Provider as an in-kind contribution; offsetting some portion of payments for permitting and franchise fees.

Free Broadband at Community Centers: Free high speed broadband to community centers in Network deployment areas combined with digital literacy and training programs described below could further reduce the digital divide. LMG could facilitate the selection of the 'free' locations. Broader availability of this arrangement could be encouraged by limiting the service provided at these locations to Internet access only (no

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TV, phone), use to public use only/non-administrative traffic, and paying network connection costs.

Digital Literacy programs:

Partner with cities, universities, and non-profit organizations to

- Reduce the digital divide
- Enhance workforce knowledge and skills
- Promote economic development
- Enhance access for anchor institutions
- Serve other targeted social purposes.

Goal 3: Deliver gigabit internet service at prices comparable to other gigabit fiber communities across the nation.

Gigabit fiber networks of the sort requested require large upfront investments to engineer and construct. Experience from deployment of similar networks suggests that attractive pricing is critical to achieving the scale of a successful program. A range of competitive prices for both stand-alone products and bundles, which gives customers a lower price and more convenience, of Internet service with TV, home phone over the fiber network, for residential and business users is needed to fulfill customer needs. In addition, promotional prices from time to time could be introduced to achieve desired customer adoption by raising awareness and stimulating demand, among other factors.

Conditions that Foster Broadband Investment

In considering Louisville Metro Government's goals, it's important to consider the Kentucky broadband and wireless investment climate as a whole. Vital steps are required at the state level for progress.

As American consumers and businesses become increasingly reliant on advanced broadband and wireless technologies, other states have updated their communications laws to reflect this new reality and to pave the way for more job creation and economic growth. Kentucky's telecommunications laws were last updated in 2006, and now our state is falling behind states like Indiana and Tennessee in the race for private investment capital.

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In order to facilitate the construction of the Network and delivery of related services, LMG should consider a commitment to providing support as identified in the following table. These commitments would increase the efficiency of deployment and encourage broader network coverage.

Town Sponsors/Contacts	Dedicated staff who will work closely with Service Provider on the matters related to the Network, including, but not limited to • Facilitating interaction between Service Provider and Louisville Metro Government officials • Coordinating between departments • Assisting in permit applications • Enabling information sharing between Service Provider and Louisville Metro Government
Community Education Program	Develop and implement an awareness and education program for community residents with respect to Service Provider's efforts to deploy the Network in certain areas. The program could include direct mailings, community meetings, and/or other initiatives.
Public Relations	Cooperate on all publicity and public relations related to the deployment of the Network. For example, cooperate on a joint publicity and public relations initiative related to the announcement of the Network.
Public Outreach	Assist with efforts to inform residents about proposed activities in the public right-of-way related to the Network build-out. Participate in non-marketing, non-promotional educational programs for local residents concerning the build-out and deployment of the Network and the potential resulting benefits to the community.
Access to Right of Way	Allow Service Provider to fully utilize and access municipal right of way and public utility easements on terms and conditions no less favorable than those granted to other providers or entities. Access to include permission to perform construction work on Louisville Metro Government right of way and public utility easements with minimally necessary permitting requirements no more burdensome than current requirements. Additionally, help facilitate efforts for Service Provider to gain access to rights of way controlled by third parties.
Access to Town Infrastructure	Allow Service Provider to have access to LMG's infrastructure on favorable terms and conditions no greater than those charged to any other entity and in no event greater than commercially reasonable rates. Traditional infrastructure used for wireless and wireline network deployment shall include, but not be limited to, conduit, fiber, poles, rack space, nodes, buildings, facilities, central office locations, available land, etc. Louisville Metro Government also grant access to other infrastructure that could be used for deployment of Service Provider's wireless and wireline network including, but not limited to, traffic signal poles, mast arms, light poles, etc.
Permits	Waive permitting requirements not absolutely necessary to protect the

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	health, safety, and welfare of the community. If permits are necessary, Louisville Metro Government will provide quick and diligent review of all applications submitted by Service Provider and ensure Louisville Metro Government resources are available to meet and review obligations; turn-around shall be expeditious and in time frames no less favorable than those provided to other entities. Specifically, Louisville Metro Government will review and respond to any permit applications of any kind that require approval in not more than three days after submission by Service Provider. If permit fees of any kind are allowed pursuant to state law, Louisville Metro Government will work with Service Provider to eliminate such fees or otherwise mitigate their effect upon the project.
Street Light Pole Attachments	Allow Service Provider to attach to street light poles for use of free public Wi-Fi hotspots.
Map and Address Data	Provide Service Provider with detailed GIS data and other address tools, including location information on the facilities owned by Louisville Metro Government.
Zoning Requirements	Work with Service Provider to ensure Service Provider can add the infrastructure within the framework of Louisville Metro Government zoning requirements. Additionally, coordinate with Service Provider prior to the build to provide clear guidance as to where additional infrastructure shall be placed.
Pavement Repairs	Work with Service Provider related to repairing street cuts. Service Provider should not be obligated to replace an unreasonably large portion of pavement or improve the condition of such pavement at time of construction.
Sales Opportunity Identification	Negotiate individual commitments to purchase Network(s) services needed for Louisville Metro Government operations (e.g., transmission capacity, Internet access, voice, video, security monitoring, cloud computing, and storage) through the Network(s). If requested, provide Service Provider with publicly available information as to entities in the Service Area that are candidates to enter into contracts for fiber or Network(s) services. Such potential end-users may include educational institutions, large employers, and governments. An initial list of such entities and contact information for key personnel will be listed in Schedules.

Next Steps

AT&T would welcome the opportunity to discuss any aspect of this response including a face-to-face session to discuss the Louisville Metro Government vision. At that time, AT&T will be prepared to answer specific questions regarding our learnings from gigabit fiber deployment.

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